

LaJuana S. Wilcher
Secretary

AIR QUALITY PERMIT

Issued under 401 KAR 52:040
State-origin Permits

Ernie Fletcher
Governor



Commonwealth of Kentucky
Natural Resources and Environmental Protection Cabinet
Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, Kentucky 40601
(502) 573-3382

Permittee Name: Quicksilver Resources, Inc.
Mailing Address: 777 West Rosedale Street, Suite 300
Fort Worth, TX 76104

is authorized to construct and operate a natural gas production facility

Source Name: Cardinal Plant – Olin Compressor Station
Mailing Address: P.O. Box 310, Corydon, IN 47112-310
Source Location: 114 Buttermilk Falls Road, Brandenburg, KY 40108

KYEIS ID #: 21-163-00024
Log Number: 56313
AI Number: 48890

SIC Code: 1311
County: Meade

Permit Number: S-04-021

Permit Type: State Construction/Operating

Regional Office: Owensboro
3032 Alvey Park Dr. W, Ste 700
Owensboro, KY 42303-2191
(270) 687-7304

Completion Date: March 18, 2004
Issuance Date: March 25, 2004
Expiration Date: March 25, 2014

John S. Lyons, Director
Division for Air Quality

DEP7001 (6-97)
Revised: 07/10/03

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Subject Item Inventory

Activity ID No.: APE20040001

Subject Item Inventory:

ID	Designation	Description
AIOO48890	Source 1	General Conditions
EQPT1	Emission Unit 01	Natural gas-fired 4-cycle rich burn reciprocating internal combustion engine - 3.9 mmBtu/hr Controls: none Maximum Rate: 4163 mmscf/hr of 960 Btu/scf natural gas (500 hp engine) Proposed Construction: 2004
EQPT2	Emission Unit 02	INSIGNIFICANT 9.0 mmBtu/hr Amine Reboiler Controls: none Maximum Throughput: 0.009606 mmscf/hr Proposed Construction: 2004
EQPT3	Emission Unit 03	INSIGNIFICANT 0.125 mmBtu/hr Glycol Dehydrator Reboiler Controls: none Maximum Throughput: 0.000130 mmscf/hr Proposed Construction: 2004
EQPT4	Emission Unit 04	INSIGNIFICANT 0.500 mmBtu/hr Glycol Dehydrator Reboiler Controls: none Maximum Throughput: 0.000534 mmscf/hr Proposed Construction: 2004

Subject Item Groups:

ID	Description	Components
GACT1	Insignificant Reboilers	EQPT3 INSIGNIFICANT 0.125 mmBtu/hr Glycol Dehydrator Reboiler Controls: none Maximum Throughput: 0.000130 mmscf/hr Proposed Construction: 2004
		EQPT4 INSIGNIFICANT 0.500 mmBtu/hr Glycol Dehydrator Reboiler Controls: none Maximum Throughput: 0.000534 mmscf/hr Proposed Construction: 2004

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Subject Item Inventory

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ID	Description	Components
GACT1	Insignificant Reboilers	EQPT2 INSIGNIFICANT 9.0 mmBtu/hr Amine Reboiler Controls: none Maximum Throughput: 0.009606 mmscf/hr Proposed Construction: 2004

KEY

ACTV = Activity

AREA = Area

EQPT = Equipment

PERS = Personnel

STOR = Storage

TRMT = Treatment

AIOO = Agency Interest

COMB = Combustion

MNPT = Monitoring Point

PORT = Transport

STRC = Structure

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AIOO48890 (Source 1) General Conditions:

Submittal/Action Requirements:

Condition No.	Condition
S-1	<p>SEMIANNUAL REPORTS:</p> <p>The permittee shall submit report(s): Due semiannually, by the 30th of January and July to the Regional Office listed on the front of this permit at least every six (6) months during the life of this permit. This report shall be a summary of any monitoring required by this permit, other than continuous emission or opacity monitors. For emission units that had not yet begun construction, were still under construction, or which had not commenced operation at the end of the 6-month period covered by the report and are subject to monitoring requirements in this permit, the report shall indicate that no monitoring was performed during the previous six months because the emission unit was not in operation. All reports shall be certified by a responsible official. All deviations from permit requirements shall be clearly identified in the reports. [401 KAR 52:040 Section 21]</p>

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Submittal/Action Requirements:

Condition No.	Condition
S-2	<p>COMPLIANCE CERTIFICATION:</p> <p>The permittee shall certify compliance with the terms and conditions contained in this permit and shall submit compliance certification: Due annually, by the 30th of January to the Regional Office listed on the front of this permit. Compliance Certification Form (DEP 7007CC) (or an approved alternative) shall be used in accordance with the following requirements:</p> <ol style="list-style-type: none">Identification of the term or condition;Compliance status of each term or condition of the permit;Whether compliance was continuous or intermittent;The method used for determining the compliance status for the source, currently and over the reporting period, andFor emission units that had not yet begun construction, were still under construction, or which had not commenced operation at the end of the 12-month period covered by the annual compliance certification, the permittee shall indicate that the unit is not in operation and that compliance with any applicable requirements will be demonstrated within the timeframes specified in the permit.The certification shall be postmarked by January 30th of each year. Annual compliance certifications should be mailed to the Regional Office listed on the front of this permit and the following address: <p>Division for Air Quality Central Files 803 Schenkel Lane Frankfort, KY 40601. [401 KAR 52:040 Section 19]</p>
S-3	<p>NOTIFICATION:</p> <p>The following information shall be reported:</p> <ol style="list-style-type: none">Date when construction commenced, (See Requirement H1.).Start-up date of each of the affected facilities listed on this permit.Date when maximum production rate was achieved, (See Requirement H2.). The permittee shall submit information: Due within 30 days after construction commencement or within 15 days following start-up and attainment of maximum production rate, or within 15 days following the issuance date of this permit, whichever is later, to the Regional Office listed on the front of this permit, with a copy to the Division's Frankfort Central Office. [401 KAR 59:005 Section 3(1)]

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Submittal/Action Requirements:

Condition No.	Condition
S-4	<p>PERFORMANCE TESTS:</p> <p>This permit shall allow time for the initial start-up, operation and (performance testing and/or compliance demonstration) of the affected facilities listed herein. However, within 60 days after achieving the maximum production rate at which the affected facilities will be operated, but not later than 180 days after initial start-up of such facilities, the owner or operator shall demonstrate compliance to a duly authorized representative of the Division. [401 KAR 59:005 Section 2(1)]. The permittee shall complete and submit Compliance Test Protocol (Form DEP 6027): Due at least 30 days prior to performance/emissions test to the Regional Office listed on the front of this permit [Policy Manual of the Division of Air Quality, Section VII 2.(1)][401 KAR 50:016 Section 1(1)]. The protocol form shall be utilized by the Division to determine if a pretest meeting is required. The Division shall be notified of the actual test date at least 10 working days prior to the test(s). [401 KAR 50:045 Section 5]</p>
S-5	<p>PERFORMANCE TEST REPORT:</p> <p>For any performance test(s) required by this permit, the permittee shall submit performance/emission test results: Due within 45 days of the completion of the fieldwork to the Division [Policy Manual of the Division for Air Quality, Section VII.3]. [401 KAR 50:016 Section 1(1)]</p>
S-6	<p>PERMIT EXPIRATION AND REAPPLICATION REQUIREMENTS:</p> <p>This permit shall remain in effect for a fixed term of ten (10) years following the original date of issue. Permit expiration shall terminate the source's right to operate unless a timely and complete renewal application has been submitted to the Division. The permittee shall submit permit application for renewal: Due 180 calendar days before permit expiration date to the Division. Upon a timely and complete submittal, the authorization to operate within the terms and conditions of this permit, including any permit shield, shall remain in effect beyond the expiration date, until the renewal permit is issued or denied by the Division. [401 KAR 52:040 Section 15]</p>

Narrative Requirements:

Condition No.	Condition
T-1	SECTION A. PERMIT AUTHORIZATION. [401 KAR 52:040]

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Narrative Requirements:

Condition No.	Condition
T-2	<p>A1. Pursuant to a duly submitted application, the Kentucky Division for Air Quality hereby authorizes the construction and operation of the equipment described herein in accordance with the terms and conditions of this permit. This permit has been issued under the provisions of Kentucky Revised Statutes Chapter 224 and regulations promulgated pursuant thereto.</p> <p>The permittee shall not construct, reconstruct, or modify an affected facility without first having submitted a complete application and received a permit for the planned activity from the Division, except as provided in this permit or in 401 KAR 52:040, State-origin permits.</p> <p>Issuance of this permit does not relieve the permittee from the responsibility of obtaining other permits, licenses, or approvals that may be required by the Cabinet or other federal, state, or local agencies. [401 KAR 52:040]</p>
T-3	SECTION B. ADMINISTRATIVE REQUIREMENTS. [401 KAR 52:040]
T-4	B1. The permittee shall comply with all conditions of this permit. Noncompliance shall be a violation of 401 KAR 52:040, Section 3(1)(b) and is grounds for enforcement action including but not limited to the termination, revocation and reissuance, or revision of this permit. [401 KAR 52:040 Section 3(1)(b)]
T-5	B2. Any condition or portion of this permit which becomes suspended or is ruled invalid as a result of any legal or other action shall not invalidate any other portion or condition of this permit. [Cabinet Provisions and Procedures for Issuing State Origin Permits, Section 1a (11)]. [401 KAR 52:040 Section 23]
T-6	B3. This permit may be revised, revoked, reopened, reissued, or terminated for cause. The filing of a request by the permittee for any permit revision, revocation, reissuance, or termination, or of a notification of a planned change or anticipated noncompliance shall not stay any permit condition. [Cabinet Provisions and Procedures for Issuing State Origin Permits, Section 1a (4) and (5)]. [401 KAR 52:040 Section 23]
T-7	B4. This permit does not convey property rights or exclusive privileges. [Cabinet Provisions and Procedures for Issuing State Origin Permits, Section 1a, 8]. [401 KAR 52:040 Section 23]
T-8	B5. Nothing in this permit shall alter or affect the liability of the permittee for any violation of applicable requirements prior to or at the time of permit issuance. [401 KAR 52:040 Section 11(3)]
T-9	B6. This permit shall be subject to suspension at any time the permittee fails to pay all fees within 90 days after notification as specified in 401 KAR 50:038 Section 3(6)(b), Air emissions fee. The permittee shall submit an annual emissions certification. [401 KAR 52:040 Section 20]
T-10	B7. All previously issued construction and operating permits are hereby null and void. [401 KAR Chapter 52]
T-11	SECTION C. RECORD KEEPING REQUIREMENTS. [401 KAR 52:040]

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Narrative Requirements:

Condition No.	Condition
T-12	C1. Records of all required monitoring data and support information, including calibrations, maintenance records, and original strip chart recordings, and copies of all reports required by the Division for Air Quality, shall be retained by the permittee for a period of at least five years and shall be made available for inspection upon request by any duly authorized representative of the Division for Air Quality. [Cabinet Provisions and Procedures for Issuing State Origin Permits, Sections 1b (IV)(2) and 1a (7)]. [401 KAR 52:040 Section 23]
T-13	C2. The permittee shall perform compliance certification and recordkeeping sufficient to assure compliance with the terms and conditions of the permit. Documents, including reports, shall be certified by a responsible official. [401 KAR 52:040 Section 21]
T-14	SECTION D. REPORTING REQUIREMENTS. [401 KAR 52:040]
T-15	D1. a. The permittee shall notify the Regional Office listed on the front of this permit concerning startups, shutdowns, or malfunctions as follows i. When emissions during any planned shutdowns and ensuing startups will exceed the standards, notification shall be made no later than three (3) days before the planned shutdown, or immediately following the decision to shut down, if the shutdown is due to events which could not have been foreseen three (3) days before the shutdown. ii. When emissions due to malfunctions, unplanned shutdowns and ensuing startups are or may be in excess of the standards notification shall be made as promptly as possible by telephone (or other electronic media) and shall submit written notice upon request. b. The permittee shall promptly report deviations from permit requirements including those attributed to upset conditions (other than emission exceedances covered by Reporting Requirement condition D1.a above), the probable cause of the deviation, and corrective or preventive measures taken; to the Regional Office listed on the front of this permit within 30 days. Other deviations from permit requirements shall be included in the semiannual report. [Cabinet Provisions and Procedures for Issuing State Origin Permits, Section 1b, V(3)]. [401 KAR 50:055 Section 1]
T-16	D2. The permittee shall furnish information requested by the Cabinet to determine if cause exists for modifying, revoking and reissuing, or terminating the permit; or compliance with the permit. [Cabinet Provisions and Procedures for Issuing State Origin Permits, Section 1a, 6]. [401 KAR 52:040 Section 23]
T-17	SECTION E. INSPECTIONS. [401 KAR 52:040]
T-18	E1. The permittee shall allow authorized representatives of the Cabinet to perform the following during reasonable times: a. Enter upon the premises to inspect any facility, equipment (including air pollution control equipment), practice, or operation; b. To access and copy any records required by the permit; c. Inspect any facilities, equipment (including monitoring and pollution control equipment), practices, or operations required by the permit. d. Sample or monitor substances or parameters to assure compliance with the permit or any applicable requirements. Reasonable times are defined as during all hours of operation, during normal office hours; or during an emergency. [401 KAR 52:040 Section 3(1)(f)]

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Narrative Requirements:

Condition No.	Condition
T-19	SECTION F. EMERGENCIES/ENFORCEMENT PROVISIONS. [401 KAR 52:040]
T-20	F1. The permittee shall not use as defense in an enforcement action, the contention that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance [Cabinet Provisions and Procedures for Issuing State Origin Permits, Section 1a, 3]. [401 KAR 52:040 Section 23]
T-21	<p>F2. An emergency shall constitute an affirmative defense to an action brought for the noncompliance with the technology-based emission limitations if the permittee demonstrates through properly signed contemporaneous operating logs or relevant evidence that:</p> <ul style="list-style-type: none">a. An emergency occurred and the permittee can identify the cause of the emergency;b. The permitted facility was at the time being properly operated;c. During an emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements in the permit; andd. The permittee notified the Division as promptly as possible and submitted written notice of the emergency to the Division within two working days after the time when emission limitations were exceeded due to the emergency and included a description of the emergency, steps taken to mitigate emissions, and corrective actions taken. <p>These provisions are in addition to any emergency or upset provision contained in an applicable requirement. [401 KAR 52:040 Section 22(1)]</p>
T-22	F3. In an enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [401 KAR 52:040 Section 22(2)]
T-23	SECTION G. COMPLIANCE. [401 KAR 52:040]
T-24	<p>G1. Periodic testing or instrumental or non-instrumental monitoring, which may consist of record keeping, shall be performed to the extent necessary to yield reliable data for purposes of demonstration of continuing compliance with the conditions of this permit. For the purpose of demonstration of continuing compliance, the following guidelines shall be followed:</p> <ul style="list-style-type: none">a. Pursuant to 401 KAR 50:055, General compliance requirements, Section 2(5), all air pollution control equipment and all pollution control measures proposed by the application in response to which this permit is issued shall be in place, properly maintained, and in operation at any time an affected facility for which the equipment and measures are designed is operated, except as provided by 401 KAR 50:055, Section 1.b. All the air pollution control systems shall be maintained regularly in accordance with good engineering practices and the recommendations of the respective manufacturers. A log shall be kept of all routine and non routine maintenance performed on each control device.c. A log of the monthly raw material consumption and/or monthly production rates shall be kept available at the facility. Compliance with the emission limits may be demonstrated by computer program, spread sheets, calculations or performance tests as may be specified by the Division. [401 KAR 50:055 Section 2]

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Narrative Requirements:

Condition No.	Condition
T-25	G2. Permit Shield - A permit shield shall not protect the owner or operator from enforcement actions for violating an applicable requirement prior to or at the time of permit issuance. Compliance with the conditions of this permit shall be considered compliance with all: (a) Applicable requirements that are included and specifically identified in this permit; or (b) Non-applicable requirements expressly identified in this permit. [401 KAR 52:040 Section 11]
T-26	SECTION H. CONSTRUCTION REQUIREMENTS. [401 KAR 52:040]
T-27	H1. Unless construction is commenced on or before 18 months after the date of issue of this permit, or if construction is commenced and then stopped for any consecutive period of 18 months or more, or is not completed within a reasonable timeframe then the construction and operating authority granted by this permit for those affected facilities for which construction was not completed shall immediately become invalid. Upon a written request, the cabinet may extend these time periods if the source shows good cause. [401 KAR 52:040 Section 12(3)]
T-28	H2. Unless notification and justification to the contrary are received by this Division, the date of achieving the maximum production rate at which the affected facilities will be operated shall be deemed to be 30 days after initial start-up. [401 KAR 59:005 Section 3(1)(b)]
T-29	H3. Operation of the affected facilities authorized by this permit shall not commence until compliance with applicable standards specified herein has been demonstrated in accordance with the requirements of 401 KAR 52:040, Section 12(4)(a) and (b). Until compliance is demonstrated, the source may only operate for the purpose of demonstrating compliance. [401 KAR 52:040 Section 12(4)(b)]
T-30	H4. If a demonstration of compliance, through performance testing was made at a production rate less than the maximum specified in the application form, then the permittee is only authorized to operate at a rate that is not greater than 110 percent of the rate demonstrated during performance testing. If and when the facility is capable of operation at the rate specified in the application, compliance must be demonstrated at the new production rate if required by the Division [Policy Manual of the Division for Air Quality, Section VII 1.(2 and 3)]. [401 KAR 50:016 Section 1(1)]

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EQPT1 (Emission Unit 01) Natural gas-fired 4-cycle rich burn reciprocating internal combustion engine - 3.9 mmBtu/hr
Controls: none

Narrative Requirements:

Applicable Regulations:

Condition No.	Condition
T-1	Applicable Regulations: State Regulation 401 KAR 63:020, Potentially hazardous matter or toxic substances.

Operation:

Condition No.	Condition
T-2	Operation: Persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants. Evaluation of such facilities as to adequacy of controls and/or procedures and emission potential will be made on an individual basis by the cabinet.

Compliance Demonstration

For compliance demonstration, refer to the Reporting Requirement T-15 in the general facility requirements.

Regulation. [401 KAR 63:020 Section 3]

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GACT1 (Insignificant) Insignificant Reboilers:

Narrative Requirements:

Condition No.	Condition
T-1	The activities within this group have been determined to be insignificant activities for this source pursuant to 401 KAR 52:040 Section 6. While these activities are designated as insignificant the permittee must comply with the applicable regulation and some minimal level of periodic monitoring may be necessary. [401 KAR 52:040 Section 6]